Toxoplasmosis
**Etiology**

*Toxoplasma gondii*

One of the most prevalent parasites infecting warm-blooded vertebrates

*Only cats complete the coccidian life cycle and pass environmentally resistant oocysts*

*Dogs can pass oocysts in feces after the ingestion of feline feces*
Clinical Signs

Common clinical findings
Depression, anorexia, fever followed by hypothermia, peritoneal effusion, icterus, and dyspnea. – nonspecific

• **Clinical disease associated with the GI phase of infection is rare**
  – Detection of T. gondii oocysts in feces is rarely reported in studies of naturally exposed cats with diarrhea

• **Systemic sign**
  – Develop overwhelming intracellular replication of tachyzoites after primary infection may cause death
  Hepatic, pulmonary, CNS, and pancreatic tissues are commonly involved
Chronic toxoplasmosis (in Dogs)

Occur most frequently in immune-suppressed dogs
- Canine distemper virus (CDV) infection
- Receiving cyclosporine

- Ataxia, seizures, tremors, cranial nerve deficits, paresis, and paralysis
- Ventricular arrhythmias
- Dyspnea, vomiting, or diarrhea
- Retinitis, anterior uveitis, iridocyclitis, and optic neuritis
Toxoplasma is one of zoonosis
The parasite rarely causes any physical symptoms in otherwise healthy adults. However, those with weakened immune systems, such as AIDS patients or pregnant women or children, may become seriously ill, and it can occasionally be fatal.

- Encephalitis (inflammation of the brain)
- Neurologic diseases
- Affect the heart, liver, inner ears, and eyes (chorioretinitis).
Transmission

1. Fecal Oocysts
2. Fecal Oocysts
3. Tissue Cysts
4. Tissue Cysts
5. Tissue Cysts
6. Tissue Cysts
7. Fecal Oocysts
8. Fecal Oocysts
9. Fecal Oocysts
10. Fecal Oocysts
11. Fecal Oocysts

△ = Infective Stage
△ = Diagnostic Stage

CDC
http://www.dpd.cdc.gov/dpdx
Life Cycle

**Intermediate hosts:** mammals, birds

- Brain, heart, lung, eye, muscles, placenta...
- Blood flow dissemination
- Endodyogeny
  - Monocyte invasion
  - Tachyzoites
  - Intestinal cells
  - Sporozoites
  - Ingestion
  - Oocyst
  - Sporogony
    - 1 to 5 days

**Definitive hosts:** Felids

- Cyst rupture
- Trophozoites
- Schizogony
- Shizont
- Gamogony
- Micro ♀/macro ♂ gametes
- Ingestion
- Intestinal cells

**External environment**
Life Cycle _ Definitive host
Life Cycle _ Intermediate host

- Sporulated oocyst
- Intermediate host
- Immune response
  - Acute infection
    - Tachyzoites
  - Chronic infection
    - Encysted bradyzoites
Diagnosis

**Antemortem definitive diagnosis**
Can be made if the organism is demonstrated; however, **this is uncommon**

- **Bradyzoites or tachyzoites**
  - Rarely detected

- **Detection of 10 × 12 µm oocysts**

In feces in cats with diarrhea suggests toxoplasmosis **but is not definitive**
Morphologically similar oocysts *(Besnoitia and Hammondia)*
Diagnosis

• In study, oocysts are shed in feces from 3 to 21 days, so it’s not easy to detect toxoplasma by antigen detection.

• Therefore, it had better detect toxoplasma by antibody, because antibody against toxoplasma will be last for 6 years.

• Regular check of Toxoplasmosis is important
The purpose of this test is detection of *Toxoplasma gondii* antibody
Anigen Rapid Toxoplasma Ab Test kit

Whole blood
Serum/Plasma

10 min.

Sensitivity: 100%
Specificity: 99%

Positive

Negative
## Anigen Rapid Toxoplasma Ab Test kit

### Comparison

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>ASAN kit</th>
<th>Bioland Kit</th>
<th>Cornell Univ. ELISA</th>
<th>BioNote</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>12</td>
<td>Negative</td>
<td>Negative</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>20</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>28</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>40</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>61</td>
<td>NT</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>62</td>
<td>NT</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>77</td>
<td>NT</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>78</td>
<td>NT</td>
<td>Negative</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>79</td>
<td>NT</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td>89</td>
<td>NT</td>
<td>Positive</td>
<td>Negative</td>
<td>Positive</td>
</tr>
</tbody>
</table>

NT : Not tested
Anigen Rapid Toxoplasma Ab Test kit

- Good screening tool for Toxoplasmosis for dogs and cats in vet clinic
- Routine health check for all animals visiting to hospital
- Should be tested for human health
Thank you for attention

Ready to Diagnose Whatever

One Step Rapid Test

ELISA Kit

PCR Kit